

Appendix

1 9. A tip having

2 a dissipative material for use in wire bonding machines for connecting leads on
3 integrated circuit bonding pads, wherein

4 said dissipative material is a doped semiconductor which is titanium
5 nitride carbide, has a resistance low enough to prevent a discharge of charge to a
6 device being bonded and high enough to avoid current flow large enough to
7 damage said device being bonded,

8 and is formed on a conducting core of

9 [A tip as in claim 8, wherein said conductor is] cobalt bonded

10 tungsten carbide[, and

11 said doped semiconductor is titanium nitride carbide].

1 30. A method of manufacturing a dissipative bonding tip comprising:

2 forming a dissipative material having at least a doped semiconductor that is
3 titanium nitride carbide, as a bonding tip that has a resistance low enough to prevent a
4 discharge of charge to a device being bonded and high enough to avoid current flow large
5 enough to damage said device being bonded,

6 wherein said step of forming includes forming said doped semiconductor on a
7 conducting core of

8 [The method of claim 29, wherein said conductor is] cobalt bonded

9 tungsten carbide[, and

10 said doped semiconductor is titanium nitride carbide].

1 33. The method of claim 19 wherein the step of forming comprises:

2 forming a solid structure; and

3 treating the solid structure by ion implantation [implementation], vapor

4 deposition, chemical vapor deposition, physical deposition, electro-plating deposition, or

5 neutron bombardment to produce a surface layer.

1 45. A method of using a bonding tip, comprising:

2 bonding a device using a bonding tip made with a dissipative material that is a

3 doped semiconductor of titanium nitride carbide and has a resistance low enough to

4 prevent a discharge of charge to said device and high enough to avoid current flow large

5 enough to damage said device, wherein

6 said dissipative material is formed on a conducting core of

7 [The method of claim 44, wherein said conducting core is] cobalt

8 bonded tungsten carbide[; and

9 said doped semiconductor is titanium nitride carbide.